



# Assessment of consumer perception and purchase behavior of laptop in Bangladesh

Monira Begum<sup>1✉</sup>, Md Nahid Hossain<sup>2</sup>, Md Zillur Rahman<sup>3</sup>, Md Jamal Uddin<sup>1</sup>

<sup>1</sup>Department of Marketing, Faculty of Business Studies, Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh

<sup>2</sup>Department of Food Technology and Rural Industries (FTRI), Faculty of Agricultural Engineering and Technology, Bangladesh Agricultural University, Mymensingh, Bangladesh

<sup>3</sup>Department of Electronics and Telecommunication Engineering (ETE), Faculty of Science and Technology, University of Development Alternative (UODA), Dhaka, Bangladesh

## ✉Corresponding author

Monira Begum,  
Department of Marketing,  
Faculty of Business Studies,  
Hajee Mohammad Danesh Science and Technology University, Dinajpur, Bangladesh,  
Email: monirajemy.pbl@gmail.com

## Article History

Received: 29 August 2020

Reviewed: 30/August/2020 to 07/October/2020

Accepted: 09 October 2020

Prepared: 11 October 2020

Published: November 2020

## Citation

Monira Begum, Md Nahid Hossain, Md Zillur Rahman, Md Jamal Uddin. Assessment of consumer perception and purchase behavior of laptop in Bangladesh. *Discovery*, 2020, 56(299), 735-747

## Publication License



© The Author(s) 2020. Open Access. This article is licensed under a [Creative Commons Attribution License 4.0 \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).

## General Note



Article is recommended to print as color digital version in recycled paper.

## ABSTRACT

This study assesses the consumer perception and purchase behavior of laptop in Bangladesh. Data have been collected from 100 consumers of Rangpur and Dinajpur city of Bangladesh. A number of key measurement indicators have been used to assess the

consumer perception and purchase decision behavior. The main indicators were brand profile, pre-purchase factors, quality factors, usage facility like as-processor, memory, hard disk, color, weight, type of keyboard, battery life, guarantee warrantee conditions, display quality, speakers, internet facility, ease of usage, DVD-CD player etc. This study reveals that price (32%), quality (60%), brand image (52%), after sale service (64%), and availability of spare parts (44%) are highly important in purchase decision. In contrary, advertisement (40%), availability (44%), discount offers (34%) are less important. It has been also found that, the value of coefficient alpha or cronbach alpha was .849 of all pre-purchase factors and decision making factors. This value indicates that the test is highly reliable and the value of KMO and Bartlett's test was .624 which indicates the scale is appropriate. The findings of this study will be helpful to all related concerned for production, quality improvement, pricing decision, marketing and purchase decision.

**Keywords:** Computer, purchase decision, total quality management, marketing, customer satisfaction

## 1. INTRODUCTION

Laptop or personal computer is an indispensable part of every day's life particularly for doing job, studying, research and business (Kamruzzaman, He, & Peng, 2019). The demand of laptop has been increased hundreds of times in the covid-19 pandemic when people are bound to stay at home and doing all activities from home (Islam et al., 2020). Laptop is a product with high participation that requires the interpretations (Jiménez-Parra, Rubio, & Vicente-Molina, 2014) with product specifications, promotional incentives, price, after-sales services, insurance or insurance terms of the target customers, etcon the product (Kamruzzaman et al., 2020). It is also necessary for the manufacturer to consider and adjust the specific custody specifications accordingly (Sarker & Rahman, 2019). A wider client base or a greater market share is not necessarily guaranteed with the implementation of improved deals and competitive schemes (Sarker et al., 2020). The maker should therefore consider the expectations of consumers regarding the brand (Al-Hashimi & AlDhari, 2019), i.e. the image of the brand in the minds of customers, and so there should be an attempt to align the image with the specifications (Shafi, Sarker, & Junrong, 2019). Therefore, an ongoing in-depth analysis of customer behavior that affects the laptop purchase decision process is needed (Sarker et al., 2019). This research is really relevant because this research would provide a launch concept for the laptop companies and serve as a roadmap to finalize plans to grow market share (Kabel, Ahlstedt, Elg, & Sundin, 2020), increase customer awareness of the product market (Yasmin, 2014) and also increase consumer awareness (Wee et al., 2014). In brief, it can be argued that it is an accurate study that may help them achieve a strategic advantage on their rivals (Nanda, Rai, Uniyal, & Bagga, 2019).

The pc product class is finished maximum diploma of standardization of components, functions and attributes (Lombart et al., 2019; Sarker et al., 2020). This product class is misplaced the capacity to distinguish in its product services (Sarker & Rahman, 2019). This is the most important task being confronted through the industry (Rahman et al., 2018). The best techniques which are left at their disposal are both increasing their product collection or make their services increasingly more appealing to the goal marketplace (Chen, Pei, & Kamruzzaman, 2020). This consequently requires an ongoing extensive examine of the patron conduct-inner drives and reasons of the goal marketplace that have an effect on their shopping for choice technique of laptops. Laptop companies had to recognize if courting existed among the demographic profile of those purchasers (Chen, Jiang, & Kamruzzaman, 2020), the maximum vital pre-buy shopping for standards for a selected emblem, numerous choice making elements they used whilst thinking about the acquisition and the very last emblem that become decided on at factor of buy (Nurunnobi, Prasad, & Arifuzzaman, 2016). Hence, there may be a want to examine purchasers shopping for conduct closer to the numerous influencing elements in buying laptop.

### Research Questions

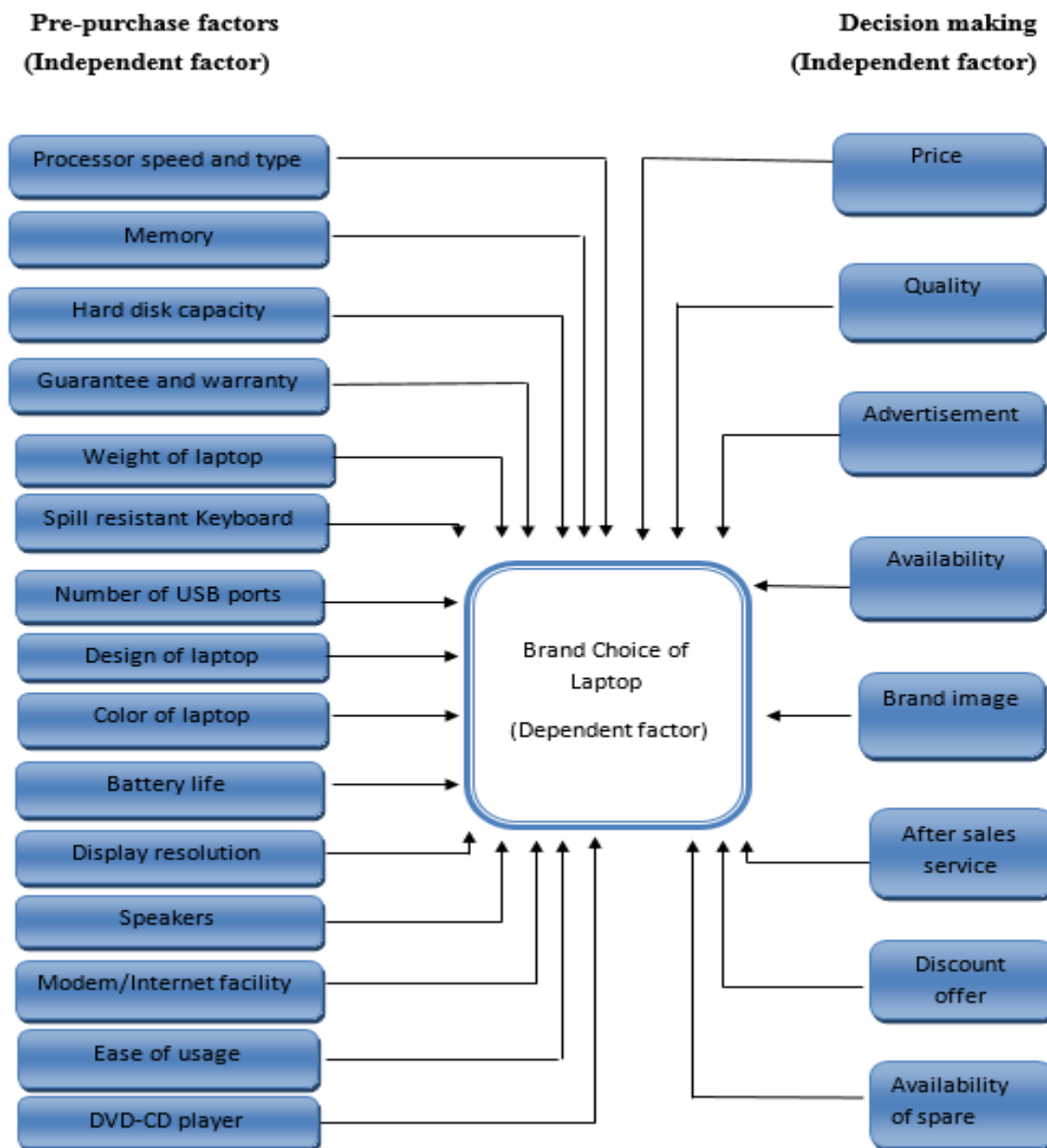
- Do the various demographic factors influence on the consumer's choice of laptop brands?
- What are different type of features or attributes that customer prefer most before purchasing a laptop?
- What are the various decision making factors that influence on the customers purchase decision of laptop?

### Research Objectives

- To explore the influence of various demographic variables like age, gender, level of education, profession, income etc. on the choice of laptop brands.
- To identify the user's different pre- purchase attributes or features before buying a particular laptop.
- To find out various considerable factors that influence the consumer's final buying decision most.

## 2. CONCEPTUAL FRAMEWORK

Brand choice of consumers shows dependency upon two independent variables (Nurunnobi et al., 2016). One is pre-purchase factors that include processor speed, memory capacity, hard disk capacity, color of laptop, weight of laptop, spill resistant keyboard, battery life, display resolution quality, guarantee warranty condition, internet/modem facility, speakers, ease of usage, DVD-CD player etc (Jiménez-Parra et al., 2014). Another is decision making factors (Shafi et al. 2020) that include price, quality, advertisement, availability, brand image, availability of spare parts, discount offer, after sale service etc (Ahmetoglu, Furnham, & Fagan, 2014). Here Figure 1 shows framework of the study that is linked between the dependent and independent variables.



**Figure 1.** Factors influencing brand choice model

## 3. METHODOLOGY

### 3.1. Sampling and Data Collection

The population of the study was the consumers of laptop brand users. 100 consumers were purposively selected for this study. 50 consumers from Dinajpur city and the other 50 customers have been decided on from Rangpur town by using comfort sampling technique. Data were gathered from the respondent as in keeping with comfort and co-operative with them. Both primary

and secondary data were used in the present study. Primary data for statistical analysis and secondary data for literature review. Primary data were obtained from both Dinajpur and Rangpur city through a well-designed questionnaire. Secondary information had been amassed thru numerous resources such as online listing, journals, reviews, media courses and diverse periodicals, net seek engine, related dissertation, related books and newspapers.

For the motive of amassing records, Non Comparative scaling inside the shape of itemized score scaling technique was used through 5 point Likert scale which is ranging from 1 to 5 where 5= Strongly agree, 4=Agree, 3=Neutral, 2= Disagree and 1= strongly disagree.

### 3.2. Data Analysis

The collected data were analyzed using various statistical methods. SPSS was the main software package for analyzing data. Key analytical techniques like demographic profile, frequency distribution of pre-purchase factors decision making factors, reliability statistics, factor analysis were used to analyze the collected data.

## 4. RESULTS AND DISCUSSION

### 4.1. Salient Features of Consumers

Gender is highly involved with the consumer buying decision of purchasing laptop. From the gender table it is shown that 58 percent male and 42 percent female are involved of buying decision of purchasing laptop (Table 1).

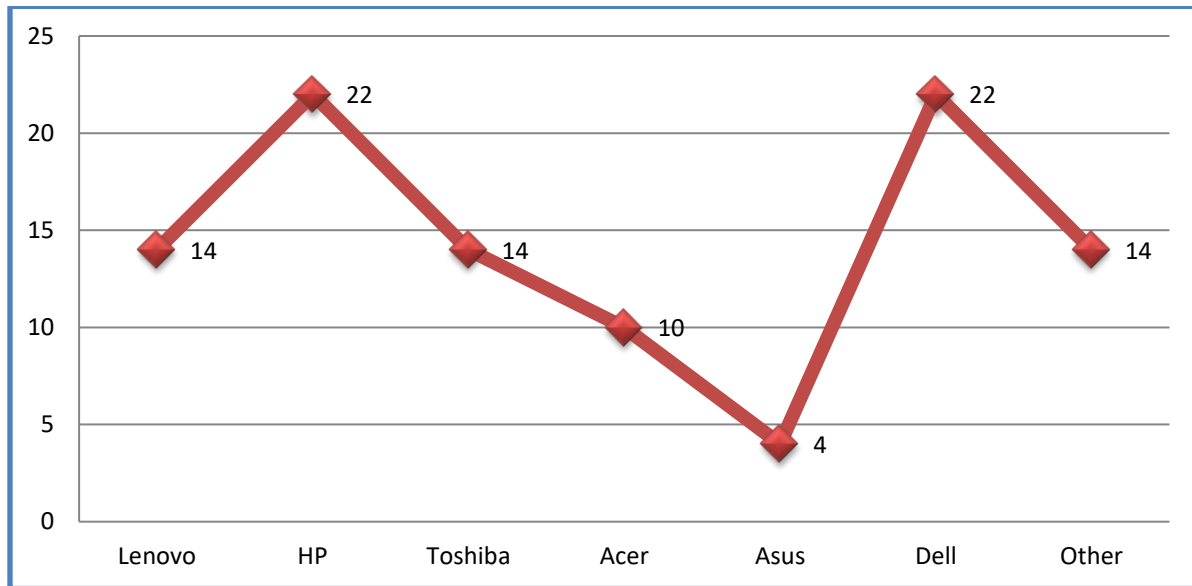
**Table 1** Salient features of consumers

| Characteristics | Categories        | Frequency | Percent |
|-----------------|-------------------|-----------|---------|
| Gender          | Male              | 58        | 28.7    |
|                 | Female            | 42        | 20.8    |
| Age             | Less than 25      | 50        | 24.8    |
|                 | 25-34             | 36        | 17.8    |
|                 | 35-44             | 10        | 5.0     |
|                 | 45-above          | 4         | 2.0     |
| Education       | S.S.C.            | 2         | 1.0     |
|                 | H.S.C.            | 6         | 3.0     |
|                 | Bachelor          | 54        | 26.7    |
|                 | Masters and above | 38        | 18.8    |
| Profession      | Student           | 56        | 27.7    |
|                 | Business          | 16        | 7.9     |
|                 | Service holder    | 24        | 11.9    |
|                 | Others            | 4         | 2.0     |
| Income          | Less than 10,000  | 44        | 21.8    |
|                 | 10,001-20,000     | 20        | 9.9     |
|                 | 20,001-30,000     | 16        | 7.9     |
|                 | 30,001-above      | 20        | 9.9     |

Age of the humans is especially concerned with buying decision of buying laptop. From the age table it's miles proven that 50 percent of human beings used pc having age much less than 25 years. Except this, 36 percentage, 10 percentage and four percentage of people involved who've age between 25-34years, 35-44 years and forty five+ years respectively. Education is very important demographic factors for buying decision of purchasing laptop. From the table it is shown that, 2 percent are S.S.C, 6 percent are H.S.C.54 percent are Bachelor and 38 percent are Masters and above. Profession is also very important demographic factors for buying decision of purchasing laptop (Nurunnobi et al., 2016). There are many people having various types of profession. From Table 1, it is shown that, 56 percent are student, 16 percent are involved with business, 24 percent are involved with service and 4 percent are others. Income of the people is another important demographic factor for purchasing laptop. From the questionnaire table it is shows that 44 percent of 100 sample sizes are in less than10000 income group. 20 percent are in 10,001-20000, 16 percent are in 20,001-30000 and 20 percent are in 30,000+ income group.

#### 4.2. Brand Usage Profile of Customers

It is observed that among the 100 respondents 14% are using Lenovo, 22% of respondents are using HP, 14% are using Toshiba, 10% are using Acer, 4% are using Asus, 22% are using Dell and 14% are using other brands of laptop (Figure 2).



**Figure 2.** Brand Usage distribution of the respondent

#### 4.3. Frequency Distribution of Pre-purchase factors

Here pre- purchase factors are the factors that customer consider before buying a particular laptop brand such as-processor, memory, hard disk, color, weight, type of keyboard, battery life, guarantee warrantee conditions, display quality, speakers, internet facility, ease of usage, DVD-CD player etc. The frequency distribution table shows that from the total of 100 respondents what percentage of the respondents are strongly disagree, disagree, agree, strongly agree or neither agree nor disagree towards a particular pre purchase factors. The table also shows the cumulative percentage of the respondents (Table 2).

**Table 2.** Respondent's perception towards various features of laptop

| Characteristics                                     | Categories        | Frequency | Percent |
|---|-------------------|-----------|---------|
| Perception towards Processor speed of laptop        | Strongly Disagree | 4         | 2.0     |
|   | Neutral           | 16        | 7.9     |
|   | Agree             | 24        | 11.9    |
|   | Strongly Agree    | 56        | 27.7    |
| Perception towards Memory of laptop                 | Strongly Disagree | 4         | 2.0     |
|   | Disagree          | 6         | 3.0     |
|   | Neutral           | 12        | 5.9     |
|   | Agree             | 38        | 18.8    |
|   | Strongly Agree    | 40        | 19.8    |
| Perception towards Hard disk capacity               | Disagree          | 6         | 3.0     |
|   | Neutral           | 8         | 4.0     |
|   | Agree             | 24        | 11.9    |
|   | Strongly Agree    | 62        | 30.7    |
| Perception towards Guarantee and warranty condition | Strongly Disagree | 8         | 4.0     |
|   | Disagree          | 2         | 1.0     |
|   | Neutral           | 12        | 5.9     |
|   | Agree             | 22        | 10.9    |
|   | Strongly Agree    | 56        | 27.7    |
| Perception towards weight                           | Strongly Disagree | 6         | 3.0     |

|   |                   |    |      |
|---|-------------------|----|------|
| of laptop                                   | Disagree          | 18 | 8.9  |
|   | Neutral           | 34 | 16.8 |
|   | Agree             | 24 | 11.9 |
|   | Strongly Agree    | 18 | 8.9  |
| Perception towards Spill resistant keyboard | Strongly Disagree | 8  | 4.0  |
|   | Disagree          | 14 | 6.9  |
|   | Neutral           | 16 | 7.9  |
|   | Agree             | 42 | 20.8 |
|   | Strongly Agree    | 20 | 9.9  |
| Perception towards Number of USB ports      | Strongly Disagree | 2  | 1.0  |
|   | Disagree          | 8  | 4.0  |
|   | Neutral           | 36 | 17.8 |
|   | Agree             | 26 | 12.9 |
|   | Strongly Agree    | 28 | 13.9 |

From the above table, it is shown that 4% of the respondent from the survey are strongly disagree, 16% are neutral, 24% are agree and 56% are strongly agree with the processor speed and type as a pre purchase factor of buying a laptop. None of them are disagree with this factor before buying a laptop. In case of Perception towards Memory of laptop, about 4% of the respondent from the survey are strongly disagree, 4% of the respondent are disagree, 12% are Neutral, 38% are agree and 40% are strongly agree with the memory capacity as a pre purchase factor of buying a laptop. For perception towards hard disk capacity, 6% of the respondent are disagree, 8% are neutral, 24% are agree and 62% are strongly agree with the hard disk capacity as a pre purchase factor of buying a laptop. In case of perception towards guarantee and warranty condition, 8% of the respondent from the Survey are strongly disagree, Only 2% of the respondent are disagree, 12% are Neutral, 22% are agree and 56% are strongly agree with the Guarantee warranty condition as a pre purchase factor of buying a laptop.

For perception towards weight of laptop, 6% of the respondent from the Survey are strongly disagree, 18% of the respondent are disagree, 34% are Neutral, 24% are agree and 18% are strongly agree with weight of a laptop as a pre purchase factor of buying a laptop. In case of perception towards Spill resistant keyboard, 8% of the respondent from the Survey are strongly disagree, 14% of the respondent are disagree, 16% are Neutral, 42% are agree and 20% are strongly agree with the spill resistant keyboard as a pre purchase factor of buying a laptop. For perception towards Number of USB ports, only 2% of the respondent from the Survey are strongly disagree, 8% of the respondent are disagree, 35% are Neutral, 26% are agree and 28% are strongly agree with the number of USB ports as a pre purchase factor of buying a laptop (Jiménez-Parra et al., 2014).

#### 4.4. Respondent's Perception towards Quality Factors

For perception towards Design of laptop, 2% of the respondent from the Survey are strongly disagree, 8% of the respondent are disagree, 32% are Neutral, 30% are agree and 28% are strongly agree with the memory capacity as a pre purchase factor of buying a laptop. In case of perception towards color of laptop, it is observed that only 2% of the respondent from the Survey are strongly disagree, 14% of the respondent are disagree, 26% are Neutral, 32% are agree and 26% are strongly agree with the various color of a laptop as a pre purchase factor of buying a particular laptop. For perception towards Battery life of laptop, it is shown that 6% of the respondent from the Survey are strongly disagree, only 4% of the respondent are disagree, 6% are Neutral, 24% are agree and 60% are strongly agree with the battery life of laptop as a pre purchase factor of buying a laptop (Table 3).

**Table 3.** Respondent's perception towards quality factors

| Characteristics                     | Categories        | Frequency | Percent |
|-------------------------------------|-------------------|-----------|---------|
| Perception towards design of laptop | Strongly Disagree | 2         | 1.0     |
|                                     | Disagree          | 8         | 4.0     |
|                                     | Neutral           | 32        | 15.8    |
|                                     | Agree             | 30        | 14.9    |
|                                     | Strongly Agree    | 28        | 13.9    |
| Perception towards color of laptop  | Strongly Disagree | 2         | 1.0     |
|                                     | Disagree          | 14        | 6.9     |

|   |                   |    |      |
|---|-------------------|----|------|
|   | Neutral           | 26 | 12.9 |
|   | Agree             | 32 | 15.8 |
|   | Strongly Agree    | 26 | 12.9 |
| Perception towards battery life of laptop     | Strongly Disagree | 6  | 3.0  |
|   | Disagree          | 4  | 2.0  |
|   | Neutral           | 6  | 3.0  |
|   | Agree             | 24 | 11.9 |
|   | Strongly Agree    | 60 | 29.7 |
| Perception towards display resolution quality | Strongly Disagree | 6  | 3.0  |
|   | Disagree          | 2  | 1.0  |
|   | Neutral           | 20 | 9.9  |
|   | Agree             | 30 | 14.9 |
|   | Strongly Agree    | 42 | 20.8 |
| Perception towards speakers of laptop         | Strongly Disagree | 4  | 2.0  |
|   | Disagree          | 6  | 3.0  |
|   | Neutral           | 30 | 14.9 |
|   | Agree             | 34 | 16.8 |
|   | Strongly Agree    | 26 | 12.9 |

In case of perception towards display resolution quality, it is shown that 6% of the respondent from the Survey are strongly disagree, 2% of the respondent are disagree, 20% are Neutral, 30% are agree and 42% are strongly agree with the Display resolution quality as a pre purchase factor of buying a laptop. For perception towards Speakers of laptop, it is shown that 4% of the respondent from the Survey are strongly disagree, 6% of the respondent are disagree, 30% are neutral, 34% are agree and 26% are strongly agree with the Speakers as a pre purchase factor of buying a laptop (Yasmin, 2014).

#### 4.5. Perception towards Usage Facility

For perception towards Modem/internet facility, it is shown that 8% of the respondent from the Survey are strongly disagree, 4% of the respondent are disagree, 6% are Neutral, 24% are agree and 58% are strongly agree with the Modem/internet facility as a pre purchase factor of buying a laptop. In case of perception towards Ease of Usage, it is shown that 4% of the respondent from the Survey are strongly disagree, 4% of the respondent are disagree, 20% are Neutral, 32% are agree and 40% are strongly agree with the Ease of Usage as a pre purchase factor of buying a laptop (Table 4).

**Table 4.** Respondent's perception towards Usage facility

| Characteristics                            | Categories        | Frequency | Percent |
|--|-------------------|-----------|---------|
| Perception towards Modem/internet facility | Strongly Disagree | 8         | 4.0     |
|  | Disagree          | 4         | 2.0     |
|  | Neutral           | 6         | 3.0     |
|  | Agree             | 24        | 11.9    |
|  | Strongly Agree    | 58        | 28.7    |
| Perception towards Ease of Usage           | Strongly Disagree | 4         | 2.0     |
|  | Disagree          | 4         | 2.0     |
|  | Neutral           | 20        | 9.9     |
|  | Agree             | 32        | 15.8    |
|  | Strongly Agree    | 40        | 19.8    |
| Perception towards DVD&CD player           | Strongly Disagree | 4         | 2.0     |
|  | Disagree          | 4         | 2.0     |
|  | Neutral           | 30        | 14.9    |
|  | Agree             | 38        | 18.8    |
|  | Strongly Agree    | 24        | 11.9    |

|                                    |                   |    |      |
|------------------------------------|-------------------|----|------|
| Perception towards Price of laptop | Strongly Disagree | 10 | 5.0  |
|                                    | Disagree          | 4  | 2.0  |
|                                    | Neutral           | 22 | 10.9 |
|                                    | Agree             | 32 | 15.8 |
|                                    | Strongly Agree    | 32 | 15.8 |

In case of perception towards ease of usage, it is shown that 4% of the respondent from the Survey are strongly disagree, 4% of the respondent are disagree, 20% are Neutral, 32% are agree and 40% are strongly agree with the Ease of Usage as a pre purchase factor of buying a laptop. For perception towards Price of laptop, it is revealed that 5% of the respondent from the Survey are strongly disagree, 4% of the respondent are disagree, 33% are Neutral, 31% are agree and 27% are strongly agree with the DVD and CD player as a pre purchase factor of buying a laptop (Rahman et al., 2018).

#### 4.6. Perception towards Factors Influencing Purchase Decision

For Perception towards Price of laptop, it is shown that 10% of the respondent from the Survey are strongly disagree, 4% of the respondent are disagree, 22% are Neutral, 32% are agree and 32% are strongly agree with the Price as a decision making factor of purchasing a particular laptop brand. In case of perception towards advertisement of laptop, it is shown that 6% of the respondent from the Survey are strongly disagree, 6% of the respondent are disagree, 6% are Neutral, 36% are agree and 40% are strongly agree with the Advertisement as a decision making factor of purchasing a particular laptop brand. For perception towards availability of laptop, it is shown that 6% of the respondent from the Survey are strongly disagree, 4% of the respondent are disagree, 16% are Neutral, 44% are agree and 30% are strongly agree with the Availability as a decision making factor of purchasing a particular laptop brand. In case of perception towards Brand image of laptop, it is shown that 0% of the respondent from the Survey are strongly disagree, 2% of the respondent are disagree, 16% are Neutral, 30% are agree and 52% are strongly agree with the Brand image as a decision making factor of purchasing a particular laptop brand (Table 5).

**Table 5.** Respondent's perception towards factors influencing purchase decision

| Characteristics                                 | Categories        | Frequency | Percent |
|---|-------------------|-----------|---------|
| Perception towards price of laptop              | Strongly Disagree | 10        | 5.0     |
|   | Disagree          | 4         | 2.0     |
|   | Neutral           | 22        | 10.9    |
|   | Agree             | 32        | 15.8    |
|   | Strongly Agree    | 32        | 15.8    |
| Perception towards advertisement of laptop      | Strongly Disagree | 6         | 3.0     |
|   | Disagree          | 6         | 3.0     |
|   | Neutral           | 36        | 17.8    |
|   | Agree             | 40        | 19.8    |
|   | Strongly Agree    | 12        | 5.9     |
| Perception towards availability of laptop       | Strongly Disagree | 6         | 3.0     |
|   | Disagree          | 4         | 2.0     |
|   | Neutral           | 16        | 7.9     |
|   | Agree             | 44        | 21.8    |
|   | Strongly Agree    | 30        | 14.9    |
| Perception towards brand image of laptop        | Disagree          | 2         | 1.0     |
|   | Neutral           | 16        | 7.9     |
|   | Agree             | 30        | 14.9    |
|   | Strongly Agree    | 52        | 25.7    |
| Perception towards after sale service of laptop | Disagree          | 2         | 1.0     |
|   | Neutral           | 12        | 5.9     |
|   | Agree             | 22        | 10.9    |
|   | Strongly Agree    | 64        | 31.7    |



|  |                   |    |      |
|--|-------------------|----|------|
| Perception towards discount offer of laptop              | Disagree          | 20 | 9.9  |
|  | Neutral           | 28 | 13.9 |
|  | Agree             | 34 | 16.8 |
|  | Strongly Agree    | 18 | 8.9  |
| Perception towards availability of spare parts of laptop | Strongly Disagree | 2  | 1.0  |
|  | Disagree          | 6  | 3.0  |
|  | Neutral           | 14 | 6.9  |
|  | Agree             | 34 | 16.8 |
|  | Strongly Agree    | 44 | 21.8 |

For perception towards after sale service of laptop, it is shown that 0% of the respondent from the Survey are strongly disagree, 2% of the respondent are disagree, 12% are Neutral, 22% are agree and 64% are strongly agree with the After sale service as a decision making factor of purchasing a particular laptop brand. In case of perception towards discount offer of laptop, it is shown that 0% of the respondent from the Survey are strongly disagree, 20% of the respondent are disagree, 28% are Neutral, 34% are agree and 18% are strongly agree with the Discount offer as a decision making factor of purchasing a particular laptop brand. For availability of spare parts of laptop, it is shown that 2% of the respondent from the Survey are strongly disagree, 6% of the respondent are disagree, 14% are Neutral, 34% are agree and 44% are strongly agree with the availability of spare parts as a decision making factor of purchasing a particular laptop brand (Jiménez-Parra et al., 2014).

#### 4.7. Reliability Analysis

The coefficient alpha or Cronbach alpha is the common of all possible break up-half of coefficients attributable to specific approaches of splitting the scale objects. This coefficient varies from zero to at least one, and a fee of 0.6 or much less typically indicates unsatisfactory inner consistency reliability. Here the value is 0.849 that means it indicates that pre-purchase factors and decision making factors have satisfactory internal consistency. The Kaiser-Meyer-Olkin degree of sampling Adequacy for the numerous product and capabilities measured is zero .624. It indicates the size is suitable and facilitates in extracting the component. The ideal degree for this take a look at ( $KMO > 0.50$ ) and right here in this situation KMO is 0.624 suggests the variables are measuring a not unusual factors (Table 7).

**Table 7.** Reliability Statistics

| Name of test   | Value |
|--|-------|
| Cronbach's Alpha   | .849  |
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO and Bartlett's Test | .624  |

#### 4.8. Factor Analysis

The features influencing consumers' computer purchase decision respondents, who participated on this survey, had been given list of various features related with pc and then they were asked to reveal how critical these capabilities for them at the same time as buying a laptop.

#### 4.9. Exploratory Factor Analysis

To identify the factors affecting pre-purchase buying behavior and decision making an exploratory factor analysis was carried out. Principle components method changed into used to extract the elements. Varimax rotation method applied to extraction of factors with Eigen value over 1. The elements, their particular items and related component loading are presented below (Table 8).

**Table 8.** Communalities

| Items              | Initial | Extraction |
|--------------------|---------|------------|
| Processor speed    | 1.000   | .672       |
| Memory             | 1.000   | .726       |
| Hard disk capacity | 1.000   | .486       |
| Guarantee warranty | 1.000   | .836       |
| Weight             | 1.000   | .798       |

|  |       |      |
|--|-------|------|
| Spill resistant keyboard                         | 1.000 | .797 |
| Number of USB ports                              | 1.000 | .536 |
| Design   | 1.000 | .670 |
| Color  | 1.000 | .595 |
| Battery life                                     | 1.000 | .658 |
| Display resolution quality                       | 1.000 | .803 |
| Speakers   | 1.000 | .661 |
| Modem internet facility                          | 1.000 | .810 |
| Ease of Usage                                    | 1.000 | .695 |
| DVD CD player                                    | 1.000 | .813 |
| Price  | 1.000 | .670 |
| Quality  | 1.000 | .953 |
| Advertisement                                    | 1.000 | .777 |
| Availability                                     | 1.000 | .735 |
| Brand image                                      | 1.000 | .806 |
| After sale service                               | 1.000 | .669 |
| Discount offer                                   | 1.000 | .853 |
| Availability of spare parts                      | 1.000 | .749 |
| Brand choice of laptop                           | 1.000 | .953 |
| Extraction method: Principal Component Analysis. |       |      |

The values of commonalities indicates that Discount offer, guarantee- warranty condition, Weight of laptop, modem facility, brand image having highest extraction in terms of correlation. None of the variable got less than 0.5 weightage (Table 9).

**Table 9.** Total Variance Explained

| Component | Initial Eigenvalues |               |              | Extraction Sums of Squared Loadings |               |              | Rotation Sums of Squared Loadings |               |              |
|-----------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
|           | Total               | % of Variance | Cumulative % | Total                               | % of Variance | Cumulative % | Total                             | % of Variance | Cumulative % |
| 1         | 6.398               | 26.658        | 26.658       | 6.398                               | 26.658        | 26.658       | 3.962                             | 16.508        | 16.508       |
| 2         | 2.581               | 10.753        | 37.411       | 2.581                               | 10.753        | 37.411       | 2.560                             | 10.667        | 27.175       |
| 3         | 1.866               | 7.774         | 45.185       | 1.866                               | 7.774         | 45.185       | 2.263                             | 9.427         | 36.602       |
| 4         | 1.562               | 6.510         | 51.695       | 1.562                               | 6.510         | 51.695       | 2.191                             | 9.127         | 45.729       |
| 5         | 1.505               | 6.270         | 57.965       | 1.505                               | 6.270         | 57.965       | 1.891                             | 7.880         | 53.609       |
| 6         | 1.406               | 5.858         | 63.823       | 1.406                               | 5.858         | 63.823       | 1.861                             | 7.754         | 61.363       |
| 7         | 1.276               | 5.318         | 69.141       | 1.276                               | 5.318         | 69.141       | 1.682                             | 7.007         | 68.370       |
| 8         | 1.128               | 4.698         | 73.839       | 1.128                               | 4.698         | 73.839       | 1.313                             | 5.469         | 73.839       |
| 9         | .919                | 3.830         | 77.669       |                                     |               |              |                                   |               |              |
| 10        | .841                | 3.504         | 81.173       |                                     |               |              |                                   |               |              |
| 11        | .779                | 3.245         | 84.418       |                                     |               |              |                                   |               |              |
| 12        | .669                | 2.789         | 87.207       |                                     |               |              |                                   |               |              |
| 13        | .630                | 2.626         | 89.833       |                                     |               |              |                                   |               |              |
| 14        | .543                | 2.262         | 92.095       |                                     |               |              |                                   |               |              |
| 15        | .361                | 1.504         | 93.599       |                                     |               |              |                                   |               |              |
| 16        | .325                | 1.355         | 94.953       |                                     |               |              |                                   |               |              |
| 17        | .277                | 1.155         | 96.108       |                                     |               |              |                                   |               |              |
| 18        | .219                | .911          | 97.020       |                                     |               |              |                                   |               |              |
| 19        | .211                | .878          | 97.898       |                                     |               |              |                                   |               |              |
| 20        | .176                | .733          | 98.632       |                                     |               |              |                                   |               |              |

|  |           |           |         |  |  |  |  |  |  |
|--|-----------|-----------|---------|--|--|--|--|--|--|
| 21   | .153      | .638      | 99.269  |  |  |  |  |  |  |
| 22   | .108      | .450      | 99.719  |  |  |  |  |  |  |
| 23   | .067      | .281      | 100.000 |  |  |  |  |  |  |
| 24   | 1.899E-17 | 7.914E-17 | 100.000 |  |  |  |  |  |  |
| Extraction Method: Principal Component Analysis. |           |           |         |  |  |  |  |  |  |

It is obvious from the above desk that eight additives cowl 70% of the information beneath Principle Component Analysis approach and cowl large variation. Again if we make bigger the restriction then, the records display thirteen additives cowl nearly 80% of the information (Table 10).

**Table 10.** Rotated Component Matrix

| Items                       | Component |       |       |       |       |       |       |       |
|-----------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|
|                             | 1         | 2     | 3     | 4     | 5     | 6     | 7     | 8     |
| Processor speed             | .682      | .221  | .282  | -.033 | -.143 | .228  | -.068 | .015  |
| Memory                      | .129      | .053  | .702  | .191  | .133  | .358  | -.176 | -.018 |
| Hard disk capacity          | .391      | .075  | .178  | .477  | -.140 | .155  | -.157 | .033  |
| Guarantee warranty          | .785      | .166  | .028  | .386  | .145  | -.043 | -.090 | .111  |
| Weight                      | .066      | -.285 | .010  | -.019 | -.059 | -.083 | .015  | .837  |
| Spill resistant keyboard    | .554      | .169  | .154  | -.056 | .286  | .279  | .232  | .471  |
| Number of USB ports         | .173      | -.026 | .003  | .265  | -.019 | .656  | .013  | .064  |
| Design                      | .724      | -.168 | -.065 | -.102 | -.114 | .240  | .094  | -.153 |
| Color                       | .115      | -.241 | .103  | -.001 | -.050 | .682  | .164  | -.140 |
| Battery life                | .651      | .084  | .247  | .293  | .083  | -.001 | -.033 | .269  |
| Display resolution quality  | .540      | .123  | .399  | .371  | -.040 | -.403 | .177  | -.058 |
| Speakers                    | -.003     | -.236 | .171  | .721  | -.076 | .143  | .150  | -.089 |
| Modem internet facility     | .683      | .139  | .305  | .182  | .387  | .217  | -.020 | -.035 |
| Ease of Usage               | .403      | .172  | .279  | .423  | .281  | .403  | .060  | .035  |
| DVD CD player               | .458      | -.100 | .167  | .067  | .268  | -.002 | .555  | -.425 |
| Price                       | .241      | .469  | .087  | -.170 | .195  | .332  | .439  | .121  |
| Quality                     | .092      | .942  | .145  | .039  | -.007 | -.133 | -.031 | -.130 |
| Advertisement               | -.166     | .045  | .231  | -.112 | .763  | -.215 | .229  | .015  |
| Availability                | .168      | -.033 | -.044 | .111  | .801  | .107  | -.190 | -.052 |
| Brand image                 | .239      | .316  | -.138 | .705  | .317  | .072  | .165  | .027  |
| After sale service          | .208      | .173  | .701  | .310  | -.046 | -.078 | -.010 | -.010 |
| Discount offer              | -.140     | -.035 | -.004 | .186  | -.108 | .106  | .878  | .068  |
| Availability of spare parts | .171      | .120  | .745  | -.223 | .145  | .002  | .275  | .065  |
| Brand choice of laptop      | .092      | .942  | .145  | .039  | -.007 | -.133 | -.031 | -.130 |

Eight factors are clearly emerging from the above table. As rotated component matrix reveals that guarantee warranty (.785), design (.724), modem facility (.683), processor speed and type (.682), battery life (.651) keyboard (.554), display (.540), dvd-cd player (.458) have higher correlation. So we clubbed those eight variables and considered as an important factor of purchasing a particular laptop brand (Nurunnobi et al., 2016).

## 5. CONCLUSION

From the demographic profile of the survey it has been found that among the respondents who were possessing laptops were male is 58%, female is 42%, From the age group there were less than 25 years is 50%, 25-34 years is 36%, 35-44 years is 10%, 45-above years is only 4%. From the education level there were S.S.C is only 2%, H.S.C. is 6%, and Bachelor is 54%, Masters and above is 38%. From the profession group, student is 56%, business person is 16%, service holder is 24%, From the income group there were less

than 10000 is 44%, 10000-20001 is 20%, 20001-30000 is 20% and 3000 –above is 20%. So it is clear that majority of the respondents are male, their age is less than 25 years and they are Bachelor students. A majority of respondents who were possessing laptops their brand names were Dell (22%) and HP (22%) where the other brand Lenovo is 14%, Toshiba is 14%, Acer is 10%, Asus is only 4% used by respondents.

In this study, it has been found that there are eight factors which highly influence Consumer's laptop pre-purchase decisions. These factors can be stated as follows: Processor speed (56%), Memory capacity (40%), Hard Disk capacity (62%), Guarantee Warranty (56%), Battery life (60%), Display resolution quality (42%), Modem/internet facility (58%), and Ease of usage (40%). On the other hand Weight (34%), Color (32%), USB ports (36%), Keyboard (42%), Design (32%), Speaker (34%), DVD and CD player (38%) are less important.

From the various decision making factors it has been found that price (32%), quality (60%), brand image (52%), after sale service (64%), and availability of spare parts (44%) are highly important in purchase decision. In contrary, advertisement (40%), availability (44%), discount offers (34%) are less important. It has been also found that, the value of coefficient alpha or Cronbach alpha was .849 of all pre-purchase factors and decision making factors. This value indicates that the test is highly reliable and the value of KMO and Bartlett's test was .624 which indicates the scale is appropriate.

## 6. RECOMMENDATIONS

Based on the resultant outcome of the study, the following recommendations and suggestions have been highlighted:

- From the study it has been found that majority of the respondents are male. Manufacturers may diversify the types of laptop brands with different ranges of corresponding prices as well as to enable different ages, different professions of customers not only male but also female who vary in their monthly incomes to select the suitable laptops according to their financial situations.
- For enhancing market share, companies may provide better featured laptops, battery life, display quality, prompt after sale service, easily availability of laptops.
- Manufacturers of different laptop brands need to improve the durability and quality of the brand, they may also consider the price of selling it so as to make it affordable to all persons. It is recommended that companies may also concentrate more on developing quality and affordable laptop and spend more time on enhancing their products to offer it at lower prices which can be done by employing cost reduction measures.

### Funding

This research did not receive any funding.

### Conflict of Interest

The authors declare no conflicts of interests any matter related to this paper.

### Data and materials availability

All related data have been presented in this paper.

### Peer-review

External peer-review was done through double-blind method.

## REFERENCES AND NOTES

- Ahmetoglu, G., Furnham, A., & Fagan, P. (2014). Pricing practices: A critical review of their effects on consumer perceptions and behaviour. *Journal of Retailing and Consumer Services*, 21(5), 696–707. <https://doi.org/10.1016/j.jretconser.2014.04.013>
- Al-Hashimi, M., & AlDhari, S. M. (2019). Factors influencing consumer behavior of women within the SPA & beauty sector: A case in the Kingdom of Bahrain. *Journal of Business & Retail Management Research*, 13(04), 289–302. <https://doi.org/10.24052/jbrmr/v13is04/art-27>
- Chen, G., Jiang, Z., & Kamruzzaman, M. M. (2020). Radar remote sensing image retrieval algorithm based on improved Sobel operator. *Journal of Visual Communication and Image Representation*, 71, 102720. <https://doi.org/10.1016/j.jvcir.2019.102720>
- Chen, G., Pei, Q., & Kamruzzaman, M. M. (2020). Remote sensing image quality evaluation based on deep support value learning networks. *Signal Processing: Image Communication*, 83(January), 115783. <https://doi.org/10.1016/j.image.2020.115783>

5. Islam, M. D. I., Rahman, A., Sarker, M. N. I., Sarker, M. S., & Jianchao, L. (2020). Factors Influencing Rice Farmers' Risk Attitudes and Perceptions in Bangladesh amid Environmental and Climatic Issues. *Polish Journal of Environmental Studies*, 30(1), 1–11. <https://doi.org/10.15244/pjoes/120365>
6. Jiménez-Parra, B., Rubio, S., & Vicente-Molina, M. A. (2014). Key drivers in the behavior of potential consumers of remanufactured products: A study on laptops in Spain. *Journal of Cleaner Production*, 85, 488–496. <https://doi.org/10.1016/j.jclepro.2014.05.047>
7. Kabel, D., Ahlstedt, S., Elg, M., & Sundin, E. (2020). Consumer purchase intention of remanufactured EEE products – A study on robotic lawn mowers in Sweden. *Procedia CIRP*, 90, 79–84. <https://doi.org/10.1016/j.procir.2020.01.091>
8. Kamruzzaman, M. M., Alanazi, S. A., Alruwaili, M., Alshammari, N., Siddiqi, M. H., & Huq, M. E. (2020). Water resource evaluation and identifying groundwater potential zones in arid area using remote sensing and geographic information system. *Journal of Computer Science*, 16(3), 266–279. <https://doi.org/10.3844/jcssp.2020.266.279>
9. Kamruzzaman, M. M., He, W., & Peng, X. (2019). Performance of relay assisted uplink wireless communication using multi-layered STBC for multiple access channel. *Telecommunication Systems*, 71(3), 309–320. <https://doi.org/10.1007/s11235-018-0493-6>
10. Lombart, C., Millan, E., Normand, J. M., Verhulst, A., Labbé-Pinlon, B., & Moreau, G. (2019). Consumer perceptions and purchase behavior toward imperfect fruits and vegetables in an immersive virtual reality grocery store. *Journal of Retailing and Consumer Services*, 48(January), 28–40. <https://doi.org/10.1016/j.jretconser.2019.01.010>
11. Nanda, M., Rai, R. S., Uniyal, D. P., & Bagga, T. (2019). Consumer buying behaviour in computer peripherals brick & mortar stores in India. *International Journal of Recent Technology and Engineering*, 7(6), 1531–1541.
12. Nurunnobi, Prasad, R. K., & Arifuzzaman, M. (2016). Buying Behavior of Young Customers in Bangladesh - A Movement towards Investigation of Their Fashion Attributes. *International Journal of Textile Science*, 5(1), 19–24. <https://doi.org/10.5923/j.textile.20160501.03>
13. Rahman, M. A., Islam, M. A., Esha, B. H., Sultana, N., & Chakravorty, S. (2018). Consumer buying behavior towards online shopping: An empirical study on Dhaka city, Bangladesh. *Cogent Business and Management*, 5(1), 1–22. <https://doi.org/10.1080/23311975.2018.1514940>
14. Sarker, M. N. I., & Rahman, M. Z. (2019). Geopolitical Influence and Trade between Bangladesh and India. *Bangladesh Journal of Public Administration*, 27(2), 70–83.
15. Sarker, M. N. I., Rahman, M. Z., Cao, Q., & Xu, Z. (2019). Impact of small entrepreneurship on poverty alleviation and sustainable livelihood of street vendors. *International Journal of Innovation and Applied Studies*, 25(4), 1241–1254.
16. Sarker, M. N. I., Yang, B., Lv, Y., Huq, M. E., & M, M. K. (2020). Climate Change Adaptation and Resilience through Big Data. *International Journal of Advanced Computer Science and Applications*, 11(3), 533–539. <https://doi.org/10.14569/IJACSA.2020.0110368>
17. Sarker, M. N. I., Yang, B., Tingzhi, W., Chakrovorty, A., Salam, M. A., & Huda, N. (2020). Impacts of internal migration on poverty alleviation in Bangladesh. *International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies*, 11(11), 1–8. <https://doi.org/10.14456/ITJEMAST.2020.210>
18. Shafi, M., Sarker, M. N. I., & Junrong, L. (2019). Social Network of Small Creative Firms and Its Effects on Innovation in Developing Countries. *SAGE Open*, 9(4), 215824401989824. <https://doi.org/10.1177/2158244019898248>
19. Shafi, M., Zoya, Lei, Z., Song, X., & Sarker, M. N. I. (2020). The effects of transformational leadership on employee creativity: Moderating role of intrinsic motivation. *Asia Pacific Management Review*, (xxxx). <https://doi.org/10.1016/j.apmr.2019.12.002>
20. Wee, C., Ariff, M., Zakuan, N., Tajudin, M., Ismail, K., & Ishak, N. (2014). Consumers perception, purchase intention and actual purchase behavior of organic food products. *Review of Integrative Business and Economics Research*, 3(2), 378.
21. Yasmin, A. (2014). Impact of Advertisements and Brand image on Purchase Decision. *International Journal of Research in Social Sciences*, 7(4), 6–7